

**REMARKS**

Reconsideration of all grounds of objection and rejection, and allowance of the pending claims are respectfully requested in light of the above amendments and the following remarks. Claims 1-12 remain pending herein, with claim 1 being withdrawn due to the Restriction Requirement of March 10, 2003.

**Summary of the Objections and Rejections:**

Due to the Restriction Requirement, 11 out of the 12 claims pending in the Office Action were examined; all of these claims (2-12) have been initially rejected.

- (1) The Examiner objects to Figure 1 because it requires the designation of "Prior Art".
- (2) The drawings require a numeric reference for "TIP" in Figs. 1 and 3.
- (3) The Examiner requires a clear distinction among the first pre-form 216, quartz tube 226, and support quartz tube 224.
- (4) The Examiner objects to an informality in the specification.
- (5) The Examiner seeks an amendment of the specification to conform with the recitation in claims 2-12 regarding the "supplementary support quartz tube."
- (6) Claims 2 and 9 stand rejected under 35 U.S.C. §112, first paragraph because the specification allegedly provides support only for independent operation of the oxygen and hydrogen of the burners, and not for the respective independent operation of the burners.
- (7) Claims 2 and 9 stand rejected under 35 U.S.C. §112, second paragraph, as the Examiner fails to understand how the burners are independently operated.
- (8) Claim 8 stands rejected under 35 U.S.C. §103(a) as allegedly being obvious over the combination of Perry (U.S. 4,596,589) in view of Dong et al. (U.S. 6,460,378)

hereafter "Dong"). Claims 3-4, 6 and 9-11 stand tacitly rejected as the Examiner cites portions of Dong in their rejection.

**Applicants' Traversal:**

(1) Fig. 1 has been designated as prior art.

(2) The numerical reference for the "TIP" of the instantly claimed burners has been numbered as item 259 in Fig. 3, and as item 139 in the Prior Art Fig. 1.

(3) The Examiner alleges that he does not see a clear distinction between the first pre-form 216, quartz tube 226, and support quartz tube 224.

We refer to Fig. 2, (as amended) which shows the first perform 216 as a series of thin dashed lines inside quartz tube 226, the thin dashed lines are extended by the supplementary support quartz tube 224 tube (represented by the darker lines).

Accordingly, it is respectfully submitted that all grounds of objection regarding the drawings (items (1) to (3)) have been overcome.

(4) There is a minor informality in the specification regarding a reference Fig. numeral 222 has been corrected. Withdrawal of this ground of rejection is respectfully requested.

(5) The specification has been updated to conform to the claimed recitation of the "supplementary support quartz tube" as in claim 8. The specification, which previously described the fixing of one end of the supplementary support tube, now discloses that the supplementary support quartz tube 224 is connected at a second end to another end of the first optical fiber pre-form.

Reconsideration and withdrawal of this ground of objection is respectfully requested.

**Traversal of Items 6 and 7:**

With regard to item 6, it is respectfully submitted that page 10, first paragraph of the discloses "respective tip lines, for providing fuel like hydrogen and oxygen gas on an "independent basis" as well as mass flow controllers (i.e. flow meters) installed on an independent basis, for controlling a mass flow. Thus, it is respectfully submitted that item 6 is readily understood by persons of ordinary skill in the art.

Applicants respectfully submit that the preferred burners 230 of the instant application in a best mode are of the oxy-hydrogen type, but are not limited to those two gases for operation. Other gases can be substituted. In the embodiment shown in Fig. 3, each side of the partition 235 (as shown in Fig. 3) permits variation of either the oxygen or the hydrogen supplied to the burners, without affecting the amount of oxygen or hydrogen supplied to the burners on an opposite side of the potential (independent operation on each side). It is by the variation of the oxygen and the hydrogen that the temperature output of the burners is controlled.

For example, Fig. 3 shows four Mass Flow Controllers (MFC's) with MFC's 240 and 242 controlling the flow of hydrogen and oxygen (respectively) to the burners above the partition 235, and MFC's 241 and 243 controlling the flow of oxygen and hydrogen (respectively) to the burners below the partition 235. It is known by an artisan that the temperature of the burners is controlled by controlling the flow of these gases. An MFC typically can be programmed with predetermined flow for a range for temperatures and duration.

In the particular simplified example shown in Fig. 3, each side of the partition is independently operable. However, an artisan also understands that by adding more

MFC's so there is a one-to-one correspondence with the burners, or using a Mass Flow controller that has a plurality of inputs and outputs permits individual burners to be independently operated, if desired.

Accordingly, it is respectfully requested that a person of ordinary skill in the art understands that the presently claimed invention permits independent operation of the burners on either side of the partition, as a particular row, or as a plurality of burners, or an individual burner, depending on the capabilities of the MFC.

Reconsideration and withdrawal of items (6) and (7) are respectfully requested.

**35 U.S.C. §103(a):**

(8) Applicants respectfully submit that a person of ordinary skill in the art would not have found claim 8, or any claim dependent thereon, to be obvious in view of the combination of Perry and Dong.

It is respectfully submitted that the combination of Perry and Dong fails to disclose, suggest, or provide incentive to modify Perry with the teachings of Dong such that instant claim 8 would have been obvious to the artisan.

It should be noted that the present invention relates to an apparatus for over-cladding an optical fiber pre-form, and more particularly, to a burner arranged with at least two rows of fuel dischargers divided by a partition.

It is alleged that the present invention would have been obvious to a person of ordinary skill in view of Perry and Dong et al., on the ground that although Perry does not disclose fuel dischargers, it discloses duplication of a burner. Contrary to the present invention, the combination of references do not disclose the fuel dischargers divided by partition and having flow controller operate independently. Further, only with a

duplication of a burner, as in the cited references, the presently claimed invention cannot be realized.

Perry discloses a method for fabricating a single mode fiber pre-form that includes the steps of placing a core rod in a glass lathe, inserting a barrier tube around the core rod and heating until the barrier tube collapses onto the core rod. A second tube made of quartz is inserted around the collapsed barrier tube/core rod combination, and subsequently heated until the second tube collapses onto the barrier tube. A third tube made of quartz is similarly inserted around the collapsed second tube and heated until collapsing. This process creates a core rod with what is referred to as a primary jacket (second tube) and a secondary jacket (third tube). Perry utilizes a burner 18 that moves along a worm screw to heat the various portions of the tubes inside the glass lathe.

Dong discloses a method for collapsing a multi-tube assembly and subsequent optical fiber drawing in the same furnace.

Clearly, the combination of Perry and Dong are silent with regard to any suggestion regarding an independently variable temperature burner. It is even acknowledged in the Office Action that the combination of Perry and Dong are "silent disclosing the details of the claimed burner."

Applicants respectfully but strongly disagree that the invention recited by claim 8 is a mere duplication of existing parts of the admitted prior art. First of all, the admitted prior art did not disclose, suggest, or provide motivation to partition the rows of fuel dischargers. The combination of Perry and Dong are also silent in this regard. Where is the suggestion in the prior art that a partition would be arranged between two rows of burners? Why would an artisan include a partition and essentially leave a space in the

rows of heating elements? Applicants respectfully but strongly submit that an impermissible degree of hindsight is being used in this ground of rejection, far beyond what the Court of Appeals deemed to be acceptable by the holding of *In re McLaughlin*.

In addition, Applicants respectfully submit that it would be a mischaracterization of the invention recited in claim 8 to reduce it to the addition of a partition. The invention is all of the recited elements, including the recitation that **the burner is movable along the length of the tube, and on a respective each side of the partition a collective temperature of the rows of fuel dischargers is variable independent of the other side of the partition.**

The presently claimed invention provides the advantage that the burner is moved along the overladding/preform combination and has the ability to provide different degrees of heat to the combination.

First, this advantage can provide improved quality control as, for example, an electric eye can monitor the heating of the overladding/preform and vary the temperature to ensure that the overladding is evenly collapsed/shrunk onto to the surface of the core rod, for the overladding may be uniformly positioned, or might shrink onto the core rod at slightly different rates.

Second, this advantage provides the instantly claimed invention to provide a hot zone (as recited in claim 9), wherein **a first respective end** of the burner **is operable in a hot zone** when sealing a top or cutting a bottom of the second quartz tube, **whereas a second respective end is off.** The area closest to the sealing of the top can be heated or cut at the bottom without overheating adjacent portions by having variable temperature control. The partition provides the advantage of providing separation, and thus, insulation

between the rows of fuel dischargers. Applicants respectfully submit that nowhere in the prior art, particularly the combination of Perry, Dong and alleged AAPA, can it be said that there is any disclosure, teaching, or suggestion to modify burners to include a partition that would serve in part to insulate a temperature of one side of the rows fuel dischargers from the fuel dischargers on the other side of the partition.

Applicants respectfully submit that at least two cases are relevant in why the claimed invention is patentable over the references and the rejection under 35 U.S.C. §103(a) should be withdrawn.

First, the Court of Appeals for the Federal Circuit has held that:

The mere fact that the prior art  
may be modified in the manner suggested  
by the Examiner does not make the  
modification obvious unless the prior art  
suggested the desirability of the modification.

*In re Fritch*, 973, F.2d 1260,1266, 23 U.S.P.Q. 2d 1780, 1783-84 (Fed. Cir. 1992). Here, the Final Office Action has not even set forth a *prima facie* case of obviousness as to the suggested desirability is arranging a partition between the fuel dischargers, let that any reason why an artisan would include a partition in multiple row burner.

Second, the Court of Appeals for the Federal Circuit held in *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) that in order to establish a *prima facie* case of obviousness, three basic criteria must be met.

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings.

Second, there must be a reasonable expectation of success.

Third, the prior art reference must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art, and not based on Applicant's disclosure.

In the present case, there is no teaching, or motivation provided for arranging a burner that moves along a overlapping/core rod combination providing variably-controlled heating across different sides of a partition arranged between the rows of burners. The advantages, as well as the suggestion for providing different degrees of heat to different areas of the overlapping/core rod combination comes only from Applicants' claimed invention, and not from anything found in the combined teachings of the references. Thus, at least the first and third requirements of *Vaech* are not met as there is no reason for the "modifications" resulting in the claimed invention that can be found in the combination of references. Nor is there even a true incentive to combine the teachings of the references. Nor is there any motivation to modify the references (in this case *Perry* in view of *Dong* and the alleged APA).

Accordingly, it is respectfully submitted that all grounds of rejection under 35 U.S.C. §103(a) have been overcome. Reconsideration and withdrawal of this ground of rejection are respectfully requested.



**BRIEF DESCRIPTION OF THE AMENDMENTS**

**TO THE DRAWINGS**

Fig. 1 has been amended to include the legend of "Prior Art" and to identify the TIPs by reference numeral.

Fig. 2 has been amended to identify that the supplementary support quartz tube 224 is connected at its second end to the fiber pre-form 216, as recited in original claim 8. The support tube 224 is attached at a first end to the lower chuck, 222, as disclosed in the specification and recited in the claim language.

Fig. 3 has been amended to replace the identification of TIPs with a reference numeral.

**CONCLUSION:**

Applicants respectfully submit that for all the foregoing reasons, all grounds of objection and rejection have been overcome. A Notice of Allowance is respectfully requested.

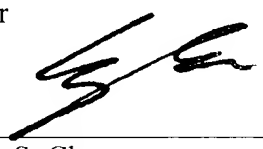
Should the Examiner deem that there are an issues that may be best resolved by telephone, please contact Applicants undersigned attorney at the number listed herein below.

Please credit any overcharges or debit any underpayments to deposit account 502-470.

Respectfully submitted,

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Attachments: Amended Figures 1, 2 and 3

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